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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,316	08/16/2001	Upendra V. Chaudhari	YOR920010425US1 (590.072)	3719

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FERENCE & ASSOCIATES
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EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/931,316	CHAUDHARI ET AL.	
	Examiner	Art Unit	
	Martin Lerner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 to 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 to 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11 Oct 2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 to 21 are rejected under 35 U.S.C. 102(e) as being anticipated by *Chaudhari et al. ('590)*.

The applied reference has a common assignee and inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). There is a non-identity of inventive entities due to the presence of inventor *Gopinath* and the absence of inventor *Navratil.* This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding independent claims 1, 11, and 21, *Chaudhari et al. ('590)* discloses a method, apparatus, and program storage device embodying program instructions, comprising:

"providing a classification system, the classification system including at least one structural parameter and at least one derived function" – a classification technique exploits indirect information about covariance structure and ability to estimate with a small amount of data (column 1, lines 64 to 67); speakers are recognized (i.e. identified, verified, or classified) by maximizing the likelihood of speech training data with respect to a model (column 2, lines 18 to 23) ("providing a classification system"); a model is parameterized by $\{m_i, \Sigma_i, p_i\}$ (column 4, lines 30 to 47) ("the classification system including at least one structural parameter"); the log likelihood, $P(X|M^j)$, is a discriminant function for classification, which is derived from means m_i, covariances Σ_i, and weights p_i (column 4, line 59 to column 5, line 30: Equations (3) to (5)) ("at least one derived function");

"adapting the classification system via adapting the at least one derived function of the classification system" – feature space adaptation utilizes a transformed discriminant function log $P(X_T|M^j_T)$ ("the at least one derived function of the classification system") to adapt the speaker model (column 5, line 31 to column 6, line 19).

Regarding claims 2 and 12, *Chaudhari et al. ('590)* discloses:

"providing a set of trained data" – training data from a source j produces a model M^j as an adaptation of the global model using the training data $\{m_i, \Sigma_i, p_i\}$ (column 4, lines 41 to 45); an initial model is obtained from training data;

"providing a set of observation data" – observations are a sequence of independent and identically distributed random vectors (column 4, lines 65 to 68); an initial model is adapted from additional observation data.

Regarding claims 3 and 13, *Chaudhari et al. ('590)* discloses the log likelihood, $P(X|M^j)$, is a discriminant function for classification, which is derived from means m_i, covariances Σ_i, and weights p_i (column 4, line 59 to column 5, line 30: Equations (3) to (5)) ("at least one derived function").

Regarding claims 4 and 14, *Chaudhari et al. ('590)* discloses acoustic feature model transformation for verifying speakers (column 2, lines 13 to 25; column 11, lines 9 to 22).

Regarding claims 5 and 15, *Chaudhari et al. ('590)* discloses the log likelihood, $P(X|M^j)$, is a discriminant function for determining which model matches best for an observing vector x ("an acoustic utterance") with respect to model M^j (column 4, lines 59 to 65).

Regarding claims 6 and 16, *Chaudhari et al. ('590)* discloses feature vectors are extracted from an input pattern-based signal provided in real-time and the test data transformation is generated of a pattern-specific representation of the real-time provider (column 3, lines 5 to 18; column 9, lines 32 to 52: Figure 5); thus, the implication is that adaptation is performed continuously and in real-time, implicitly.

Regarding claims 7 and 17, *Chaudhari et al. ('590)* discloses model transformation for verifying and classifying speakers (column 2, lines 13 to 25).

Regarding claims 8 and 18, *Chaudhari et al. ('590)* discloses feature vectors are extracted from an input pattern-based signal provided in real-time and the test data transformation is generated of a pattern-specific representation of the real-time provider

(column 3, lines 5 to 18; column 9, lines 32 to 52: Figure 5); thus, the implication is that adaptation is performed continuously to new conditions, implicitly.

Regarding claims 9 and 19, *Chaudhari et al. ('590)* discloses a Lincoln Lab Handset Database (LLHDB) was used for matched condition experiments to construct the background model from all telephony microphones in the database (column 11, lines 23 to 42); Applicants' Specification, Page 10, Line 7 to Page 11, Line 3, describes new acoustic conditions or environment only in a general way; thus, a new dataset for adaptation implicitly involves detection of and adaptation to "a new acoustic condition" or "a new acoustic environment".

Regarding claims 10 and 20, *Chaudhari et al. ('590)* discloses speaker verification involves comparing a score to a threshold to determine acceptance or rejection of a speaker (column 11, lines 20 to 22: Figures 8 to 10); meeting a threshold for speaker verification corresponds to "satisfying a present security level in verifying the claimed identity of a speaker."

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

Chaudhari et al. ("Very large population text-independent speaker identification using transformation enhanced multi-grained models"), Chou et al., Buhrke et al., Mammone et al., and Parthasarathy et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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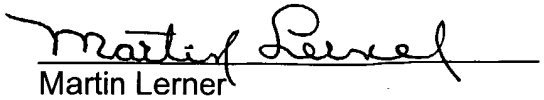

Martin Lerner
Examiner
Group Art Unit 2654